AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 50

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
0001	01/03/01		ED-99-078

6. ISSUED BY CODE	7. ADMINISTERED BY (If other than Item 6) CODE
US ARMY ENGR DIST NEW ORLEANS 7400 LEAKE AVE NEW ORLEANS LA 70118 POC: ROBERT S. CARUTHERS (504) 862-1099	US ARMY ENGR DIST, NEW ORLEANS ATTN: CEMVN-CT P O BOX 60267 NEW ORLEANS, LA 70160-0267

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)	(X)	9A. AMENDMENT OF SOLICITATION NO.
		DACW29-01-B-0010
	X	9B. DATED (SEE ITEM 11) 12/15/00
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended, [X] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

THE ABOVE NUMBERED SOLICITATION FOR INNER HARBOR HAVIGATION CANAL (IHNC)REPLACEMENT PROJECT, GALVEZ STREET WHARF DEMOLITION, NEW ORLEANS, LA, SPECIFICATION NUMBER ED-01-078, IS HEREBY AMENDED AS SHOWN ON THE ATTACHED SHEETS.

BID OPENING DATE OF 17 JANUARY 2001, AT 2:00 PM, REMAINS UNCHANGED.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED

SPECIFICATIONS:

Section 01100 – General Provisions

Page 01100-12, paragraph 11. Port of New Orleans Permit. At the end of the paragraph insert the following:

"Notwithstanding the fact that the Permit with the Port of New Orleans refers to the Right of Entry for Construction dated November 9, 2000, the only provision that pertains to the contractor is paragraph 2, which is transcribed verbatim, as follows:

"2. This Right of Entry includes the right of ingress and egress on other lands of the Owner not described below, provided such ingress and egress is necessary and not otherwise conveniently available to the Government and its contractors, and further provided that the Government, through the Corps of Engineers, and or its contractors, give written notice in advance to the Owner of the intended use and make every reasonable effort to coordinate their work so that it does not unreasonably interfere with the activities of the Owner or the Owner's tenants in the area or the Owner's contractors who will be involved with the construction of the new Florida Avenue Bridge. If ingress or egress is required on the Owner's other property that is under lease, the Owner will cooperate with the Government to secure written approval from the tenants that lease the property, copies of which shall be provided to the Owner."

Note: "Owner" refers to the Port of New Orleans in the paragraph above."

Section 13280 – Asbestos Abatement

Delete Section 13280, pages 13280-a and b thru 13280-34, also including the twelve (12) Set-Up Detail Sheets And Response Action Detail Sheets attached as "Attachment B", and replace with the revised attached Section 13280, pages 13280-a and b thru 13280-34, also including the twelve (12) Set-Up Detail Sheets And Response Action Detail Sheets attached as "Attachment B".

DRAWINGS:

No Changes.

Section Table of Contents

SECTION 13280 - ASBESTOS ABATEMENT

SECTION 13280

ASBESTOS ABATEMENT

PART 1 GENERAL

Asbestos roofing materials, floor tiles with associated mastic, and corrugated sheeting judged to be Class II, Category I Non-Friable shall be demolished in place. Emphasis will be placed on sequential segregation of asbestos containing versus non-asbestos containing waste streams throughout this demolition.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2	(1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems
ANSI Z87.1	(1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection
ANSI Z88.2	(1992) Respiratory Protection

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 732 - 95	Aging Effects of Artificial Weathering on Latex Sealants
ASTM D 522 – 93a	Mandrel Bend Test of Attached Organic Coatings
ASTM D 1331-89(1995)	Surface and Interfacial Tension of Solutions of Surface-Active Agents
ASTM D 2794 – 93(1999)e1	Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 4397 - 96	Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM E 84 –00a	Surface Burning Characteristics of Building Materials

ASTM E 96 -00	Water Vapor Transmission of Materials
ASTM E 119 - 00	Fire Tests of Building Construction and Materials
ASTM E 736 - 00	Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members
ASTM E 1368 - 00	Visual Inspection of Asbestos Abatement Projects

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 61	National Emissions Standards for Hazardous Air Pollutants
40 CFR 763	Asbestos
42 CFR 84	Approval of Respiratory Protective Devices
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 171	General Information, Regulations and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packaging

COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7	(1990) Compressed Air for Human Respiration
CGA G-7.1	(1997) Commodity Specification for Air

ENGINEERING MANUALS (EM)

EM 385-1-1	(3 Sep 1996) Safety and Health Requirements Manual

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90-018	(1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance
EPA 340/1-90-019	(1990) Asbestos/NESHAP Adequately Wet Guidance
EPA 560/5-85-024	(1985) Guidance for Controlling Asbestos-Containing Materials in Buildings

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701	(1999) Methods of Fire Tests for Flame Propagation of Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 84-100	(1984; Supple 1985, 1987, 1988 & 1990) NIOSH Manual of Analytical Methods

UNDERWRITERS LABORATORIES (UL)

UL 586	(1996) High-Efficiency, Particulate, Air Filter Units

STATE of LOUISIANA REGULATIONS

(1997) Louisiana Administrative Code 33.III, 5151 Environmental Quality

1.2 DEFINITIONS

a. Adequately Wet: A term defined in 40 CFR 61, Subpart M, and EPA 340/1-90-019 meaning to sufficiently mix or penetrate with liquid to prevent the release of particulate. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

b. Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact asbestos-containing material (ACM).

c. Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.

d. Asbestos: Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophylite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

e. Asbestos-Containing Material (ACM): Any materials containing more than one percent asbestos.

f. Asbestos Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1.

g. Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.

h. Building Inspector: Individual who inspects buildings for asbestos and has EPA Model Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

i. Certified Industrial Hygienist (CIH): An Industrial Hygienist certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

j. Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM.

k. Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain "incidental" roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II asbestos work. Removal of small amounts of these materials which would fit into a glovebag may be classified as a Class III job.

l. Class III Asbestos Work: Activities defined by OSHA that involve repair and maintenance operations, where ACM, including TSI and surfacing ACM, is likely to be disturbed. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics and spaces above the ceiling, where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.

m. Class IV Asbestos Work: Maintenance and custodial construction activities during which employees contact but do not disturb ACM and activities to clean-up dust, waste and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust

exists and cleaning up loose ACM debris from TSI or surfacing ACM following construction.

n. Clean room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

o. Competent Person: In addition to the definition in 29 CFR 1926.32(f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926.1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

p. Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

q. Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a regulated area from migrating to an adjacent area.

r. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

s. Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

t. Disposal Bag: A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926.1101, used for transporting asbestos waste from containment to disposal site.

u. Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.

v. Equipment Room or Area: An area adjacent to the regulated area used for the decontamination of employees and their equipment.

w. Employee Exposure: That exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

x. Fiber: A fibrous particulate, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.

y. Friable ACM: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent, as determined by a method other than point counting by PLM, the asbestos content is verified by point counting using PLM.

z. Glovebag: Not more than a 60 by 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

aa. High-Efficiency Particulate Air (HEPA) Filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

bb. Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.

cc. Industrial Hygienist: A professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.

dd. Intact: ACM which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.

ee. Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763, Subpart E, Appendix C.

ff. Modification: A changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system.

gg. Negative Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).

hh. NESHAP: National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61, Subpart M.

ii. Nonfriable ACM: A NESHAP term defined in 40 CFR 61, Subpart M and EPA 340/1-90-018 meaning any material containing more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

The phrase “reduced to powder by hand pressure” denotes that friability may not result from fracturing of structural materials. For vinyl asbestos tiles and asphaltic roofing, the substrates shall agglomerate with the asbestos fibers, thus impeding release of asbestos fibers as separate entities. Thus demolition methods that fracture tiles and roofing without pulverizing these substances into powders, shall release much less asbestos into the surrounding atmosphere.

jj. Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90-018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy.

kk. Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90-018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using the methods specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

ll. Permissible Exposure Limits (PELs):

(1) PEL-Time weighted average(TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8 hour time weighted average (TWA), as determined by the method prescribed in 29 CFR 1926.1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400.

(2) PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes as determined by the method prescribed in 29 CFR 1926.1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400.

mm. Regulated Area: An OSHA term defined in 29 CFR 1926.1101 meaning an area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted; also any adjoining area where debris and waste from such asbestos work accumulate; and an area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.

nn. Removal: All operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.

oo. Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates. If the amount of asbestos so "disturbed" cannot be contained in 1 standard glovebag or waste bag, Class I precautions are required.

pp. Spills/Emergency Cleanups: Cleanup of sizable amounts of asbestos waste and debris which has occurred, for example, when water damage occurs in a building, and sizable amounts of ACM are dislodged. A Competent Person evaluates the site and ACM to be handled, and based on the type, condition and extent of the dislodged material, classifies the cleanup as Class I, II, or III. Only if the material was intact and the cleanup involves mere contact of ACM, rather than disturbance, could there be a Class IV classification.

qq. Surfacing ACM: Asbestos-containing material which contains more than 1% asbestos and is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

rr. Thermal system insulation (TSI) ACM: ACM which contains more than 1% asbestos and is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation.

ss. Transite: A generic name for asbestos cement wallboard and pipe.

tt. Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926.1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation required by 40 CFR 763, Subpart E, Appendix C, if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

1.3 DESCRIPTION OF WORK

The work covered by this section includes the removal of asbestos-containing materials (ACM) which are encountered during demolition activities associated with this project and describes procedures and equipment required to protect workers and occupants of the regulated area from contact with airborne asbestos fibers and ACM dust and debris. Activities include OSHA Class II work operations involving ACM. The work also includes containment, storage, transportation and disposal of the generated ACM wastes. More specific operational procedures shall be detailed in the Asbestos Hazard Abatement Plan.

1.3.1 Abatement Work Tasks

The specific ACM to be abated are the built-up roofing materials on the wharf warehouse, the storeroom flooring and the storeroom's awning as identified on the project drawings. The appropriate RESPONSE ACTION DETAIL SHEETS (items to be abated and methods to be used) and SET-UP DETAIL SHEETS (containment techniques to include safety precautions and methods) for each individual ACM abatement work task are included at the end of this section as Attachment B. A summary of preliminary test results for asbestos screening is attached at the end of this section entitled, Attachment - A – Asbestos Test Results.

1.3.2 Dust Suppression

In demolition activities, the term "adequately wet" becomes particularly important. Since asbestos concentrations in the air must be maintained below 0.1 f/cc or background levels, as determined by air monitoring prior to work initiation, visible dust cannot be used as a marker. Thus area air monitoring during any aspects of demolition that include ACM manipulation shall be required.

1.3.3 Unexpected Discovery of Asbestos

For any previously untested building components suspected to contain asbestos and located in areas impacted by the work, the Contractor shall notify the Contracting Officer (CO) who will have the option of ordering up to six (6) bulk samples to be obtained at the Contractor's expense and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)" and analyzed by PLM at no additional cost to the Government. Any additional components identified as ACM that have been approved by the Contracting Officer for removal shall be removed by the Contractor and will be paid for by an equitable adjustment to the contract price under the CONTRACT CLAUSE titled "changes". Sampling activities undertaken to determine the presence of additional ACM shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, Appendix C, and who have current accreditation with LDEQ as an asbestos inspector.

1.4 MEASUREMENT AND PAYMENT

No measurement will be made for asbestos removal and disposal. Payment will be made at the contract lump sum price for " Removal and Disposal of Asbestos Containing Material." Price and payment shall constitute full compensation for furnishing all plant, labor, materials, and equipment to complete the work as specified herein and as shown on the drawings.

1.5 SECURITY

The asbestos regulated work sites shall be secured as specified in Paragraph 1.16 below. A log book shall be kept documenting entry into and out of the asbestos regulated work area. Entry into asbestos regulated work areas shall only be by personnel authorized by the Contractor and Contracting Officer. Personnel authorized to enter asbestos regulated work areas shall be trained, medically evaluated and wear the personal protective equipment, as required by this specification, for the specific asbestos regulated work area to be entered.

1.6 MEDICAL REQUIREMENTS

Medical requirements shall conform to 29 CFR 1926.1101.

1.6.1 Medical Examinations

Before being exposed to asbestos, workers shall be provided with a comprehensive medical examination as required by 29 CFR 1926.1101 and other pertinent state or local requirements. This requirement must have been satisfied within the past year. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. X-ray films of asbestos workers shall be identified to the consulting radiologist and medical record jackets shall be marked with the word "asbestos."

1.6.2 Medical and Exposure Records

Complete and accurate records shall be maintained of each employee's medical examinations, medical records and exposure data as required by 29 CFR 1910.20 and 29 CFR 1926.1101 for a period of 50 years after termination of employment. Records of the required medical examinations and exposure data shall be made available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and an employee's physician upon request of the employee or former employee. Maintain on file at the work site for review as requested by the Contracting Officer, a copy of the required medical certification for each employee.

1.7 TRAINING

Within 1 year prior to assignment and commencement of cutting into, handling and disposal of asbestos containing material for this project, each worker directly involved in handling ACM and ACM generated wastes to include packaging and transporting such wastes for disposal, shall take and successfully complete a course of asbestos training as specified by United States Environmental Protection Agency (EPA) requirements at 40 CFR 763. Workers shall take and successfully complete the "Worker" course. Onsite supervisors and technical support personnel shall take and successfully complete the "Contractor/Supervisor" course. Worker and

Contractor/Supervisor courses taken more than 1 year prior to commencement of work are acceptable provided that the individual has successfully completed the annual refresher training as required by the regulatory agency. In addition, prior to the commencement of work, each worker shall be instructed by the Contractor's Certified Industrial Hygienist and onsite "competent person" supervisor in the following project specific training: the hazards and health effects of the specific types of ACM to be disturbed, the content and requirements of the Contractor's Asbestos Hazard Abatement Plan, Accident Prevention Plan, Hazard Communication Program, site specific safety and health precautions, work practices, the use requirements and limitations of the personal protective clothing, equipment, and respirators to be used, hands-on training for the asbestos abatement technique to be employed, heat and/or cold stress monitoring specific to this project, personal hygiene and housekeeping requirements, air monitoring program and procedures, medical surveillance to include medical and exposure record keeping procedures, the association of cigarette smoke and asbestos related disease, security procedures, emergency response requirements and all additional requirements of 29 CFR 1926.1101. Training shall also include, for each employee, a respirator fit test administered by the Contractor's Certified Industrial Hygienist as required by 29 CFR 1926.1101.

1.8 RESPIRATORY PROTECTION PROGRAM

The Contractor's Certified Industrial Hygienist shall establish and implement a respiratory protection program in accordance with 29 CFR 1926.1101, 29 CFR 1910.134, 40 CFR 763.121, ANSI Z88.2, CGA G-7 and CGA G-7.1. SET-UP DETAIL SHEET NO. 12 entitled "Respiratory Protection Table" is attached at the end of this section in Attachment B, and shall be used by the Contractor's Certified Industrial Hygienist to establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations encountered in the asbestos work. The Contractor's respiratory protection program shall include, but not be limited to, the following elements:

a. The company policy, used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.

b. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.

c. Medical evaluation of each user to verify that the worker may be assigned to an activity where respiratory protection is required.

d. Training in the proper use and limitations of respirators.

e. Respirator fit-testing, i.e., quantitative, qualitative and individual functional fit checks.

f. Regular cleaning and disinfecting of respirators.

g. Routine inspection of respirators during cleaning and after each use when designated for emergency use.

h. Storage of respirators in convenient, clean, and sanitary locations.

i. Surveillance of work area conditions and degree of employee exposure (e.g., through continual personal air monitoring).

j. Regular evaluation of the continued effectiveness of the respiratory protection program.

k. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with valve function; prescription eye wear usage; prohibition of wearing contact lenses; etc.).

l. Proper training in putting on and removing respirators.

1.9 SAFETY AND HEALTH COMPLIANCE

The work shall comply with applicable laws, ordinances, criteria, rules, and regulations of federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials and with the applicable requirements of 29 CFR 1910, 29 CFR 1926, 40 CFR 61, Subpart A, and 40 CFR 61, Subpart M, 40 CFR 763, Subpart G, NFPA 10, NFPA 70, NFPA 90A, and NFPA 101. Matters of interpretation of standards shall be submitted to the Contracting Officer for resolution before starting work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the Contracting Officer shall apply.

1.10 CERTIFIED INDUSTRIAL HYGIENIST (CIH)

Individual air sampling and training shall be conducted under the direction of a CIH experienced in asbestos abatement for a minimum of two years and is currently certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene (ABIH).

1.11 PERMITS, LICENSES AND NOTIFICATIONS

Necessary permits and licenses shall be obtained in conjunction with the project asbestos abatement, transportation and disposal actions, and timely notification furnished of such actions required by federal, state, regional, and local authorities and as otherwise specified herein. The Contractor shall notify the Regional Office of the USEPA and the Louisiana Department of Environmental Quality (LDEQ) and the

Contracting Officer in writing at least 10 days prior to the commencement of work in accordance with 40 CFR 61, Subpart M, state and local requirements to include the mandatory LDEQ "Notification of Demolition and Renovation Form AAC-2" form and other required notification documents.

1.12 SUBMITTALS

The following shall be submitted in accordance with the General Provision entitled "Section 01330 SUBMITTAL PROCEDURES":

1.12.1 Asbestos Hazard Abatement Plan

The Contractor shall develop and implement a detailed plan of the response actions to be taken and the control procedures to be used in cutting into, removal and disposal of the asbestos siding. The plan shall be prepared by, signed, sealed (including certification number), and dated by the Contractor's CIH and shall be submitted to Contracting Officer for review and approval. Such plan shall include, but not be limited to the following:

a. Respiratory protection program in accordance with Paragraph 1.7 above.

b. Specific health and safety plans for asbestos handling and removal work in accordance with Paragraph 1.8 above.

c. The precise personal protective equipment to be used.

d. The location of asbestos regulated work areas including clean and dirty areas.

e. Abatement method.

f. Equipment and procedures for removing, cutting, handling and wrapping.

g. Equipment decontamination.

h. Disposal procedures and plan.

i. Disposal site location.

j. Type of wetting agent.

k. Planned air monitoring strategies.

l. Baseline air sampling results.

m. Examples of report formats and logs.

n. A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber concentrations.

o. The plan shall also include medical emergency response procedures and the specific security procedures to be used for all asbestos regulated work areas.

The asbestos hazard abatement plan shall be submitted in writing within 10 days of signing of the modification for asbestos work and must be approved by the CO prior to the start of any asbestos abatement work.

1.12.2 Statements

1.12.2.1 Qualification

A written qualifications and organization report providing evidence of qualifications of the Contractor, Contractor's on-site supervisor, Contractor workers, all subcontractors, subcontractor supervisors, subcontractor workers, CIH, testing laboratory, and testing laboratory analysts, to perform cutting of asbestos cement siding, handling, removal and disposal as required herein shall be submitted for review and approval as part of the Asbestos Hazard Abatement Plan specified in Paragraph 1.11.1 above. The report shall specify the Contractor's staff organization to include subcontractors, CIH, and testing laboratory chain of command to be used for this project. The report shall be signed by the Contractor and the principals of all subcontractors, CIH, testing laboratories, and certify that all personnel involved in the asbestos work fully understand the contents of 29 CFR 1926, 40 CFR 61, Subpart M, and the federal, state and local requirements specified in Paragraph 1.8 above. The Contractor's qualification report shall contain information required below:

a. Evidence that Contractor's full-time on-site supervisor for asbestos abatement is designated as, and is qualified to be, a "competent person" in accordance with 29 CFR 1926 and is experienced in the administration and supervision of asbestos abatement projects, including work practices, abatement methods, protective measures for personnel, inspection of asbestos abatement work areas, ACM generated waste containment and disposal procedures, site safety and health requirements, etc. This designated "competent person" on-site supervisor shall be responsible for compliance with applicable federal, state and local requirements, and all of the Contractor's submittals. The Contractor shall submit evidence that this person has a minimum of 2 years of on-the-job asbestos abatement supervisory experience.

b. The name, address and telephone number of each testing laboratory that will perform the sample analyses and report the results for asbestos. For the laboratory conducting phase contrast microscopy (PCM) of airborne samples using the methods specified by 29 CFR 1926 and NIOSH Pub No. 84-100 Method 7400; transmission electron microscopy (TEM) of airborne samples using the methods specified by NIOSH Pub No. 84-100 Method 7402 written

verification of the following criteria, signed by the Testing Laboratory principal and the Contractor shall be submitted:

(1) The laboratory is currently judged proficient in counting airborne asbestos samples by PCM by successful participation within the past year in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program.

(2) The name of each selected microscopist who will analyze airborne samples by PCM with substantiating verification that such person possesses the demonstrated proficiency to conduct PCM analysis by being judged proficient in counting samples as a current participating analyst in the AIHA PAT Program, and having successfully completed the Asbestos Sampling and Analysis course (NIOSH 582 or equivalent; a copy of course completion certificate is required).

(3) The laboratory is fully equipped and each analyst possesses demonstrated proficiency to confirm NIOSH Pub No. 84-100 Method 7400 PCM sample analyses results from the same filter by conducting NIOSH Pub No. 84-100 Method 7402 TEM analyses.

1.12.2.2 Certified Industrial Hygienist Qualifications

The CIH shall have a minimum of 2 years of comprehensive experience in planning and overseeing asbestos abatement activities.

1.12.2.3 Landfill and Transporter Qualifications

Written evidence that the landfill for disposal is approved for asbestos disposal by the USEPA and LDEQ regulatory agencies shall be submitted as part of the Asbestos Hazard Abatement Plan specified in Paragraph 1.12.1 above. Copies of signed agreements between the Contractor, and each subcontractor to include transporters and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste generated during the performance of this contract. Qualification resumes of each subcontractor transporter to be used shall be submitted as part of the Asbestos Hazard Abatement Plan specified in Paragraph 1.12.1 above, indicating previous experience in transport and disposal of asbestos waste to include all required state and local waste hauler requirements for asbestos.

1.12.2.4 Employee Training and Certification of Worker Acknowledgment

A copy of certification of accreditation for completion of "Workers" course or "Contractor/Supervisor" Course meeting the requirements of EPA's 40 CFR 763, and all subsequent annual refresher training certificates meeting the same requirements shall be submitted for each employee to be engaged in the work required in this specification who will be potentially exposed to asbestos as determined by their direct

handling of the material, or airborne exposure in excess of 0.005 f/cc measured as an 8 hour time-weighted average.

1.12.3 Training Material

A copy of the written project site specific training material as indicated in 29 CFR 1926.1101 that will be used to train all on-site employees. This training document shall be signed by the Contractor's CIH and competent person supervisor.

1.12.4 Certification of Medical Requirements

For each worker, a written medical opinion prepared and signed by a licensed physician indicating the following:

a. Summary of the results of the examination.

b. The potential for an existing physiological condition that would place the employee at an increased risk of health impairment from exposure to asbestos,

c. The ability of the individual to wear personal protective equipment including respirators while performing strenuous work tasks under cold stress and/or heat stress conditions.

d. A statement that the employee has been informed of the result of the examination, been provided a copy of the results, and informed of any medical condition that may result from asbestos exposure.

1.12.5 Reports

1.12.5.1 Field Tests

a. Air sampling reports.

b. Asbestos waste disposal record report.

1.12.5.2 Air Sampling Results

Air sample fiber counting shall be completed and results provided to the Contracting Officer within 24 hours after completion of a sampling period. The Contracting Officer shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 24 hours of the time of collection. The written results shall be signed by testing laboratory analyst, testing laboratory principal and the CIH. The air sampling results shall be documented on a Contractor's air monitoring log. The air monitoring log shall be provided to the Contracting Officer 5 working days after completion of all air monitoring activities required in this section. The air monitoring log shall contain the

following information for each sample: date sample collected, date sample analyzed, sample number, sample type (P = Personal, A = Area, C = Abatement Clearance, IRWA = Inside regulated work area, ORWA = Outside regulated work area), sample period (start time, stop time, elapsed time), sampling pump manufacturer model and serial number, average flow rate (liters per minute (L/min)), total air volume sampled (liters (l)), sample results (fibers per cubic centimeter (f/cc)), and location/activity/name where sample collected. In addition, the log shall identify the calibration method used to calibrate the sampling pumps, the name and location of the laboratory conducting the sample analyses, print name, signature, and date block for the industrial hygienist who conducted the sampling and the review verifying the accuracy of the information.

1.12.6 Notifications

The Contracting Officer shall be notified in writing 3 days prior to the start of asbestos work. A copy of the written notification shall be provided to any rental company concerning the intended use of rental equipment and the possibility of asbestos contamination, the decontamination procedures that will be used prior to the return of the equipment. A copy of the rental company's written acknowledgment and agreement shall be included in the submittal.

1.12.7 Asbestos Waste Shipment

Final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records as specified herein. Detailed information of all asbestos waste disposals on the "MANDATORY WASTE SHIPMENT RECORD" form in accordance with revised 40 CFR 61, Subpart M. Such completed forms signed and dated by the Contractor (as the generator) and the agent of the landfill shall be submitted within 3 days after date of delivery of ACM to the landfill. If this record is not received, payment for the work specified in this section will not be made.

1.13 PERSONAL PROTECTIVE EQUIPMENT

Three (3) complete sets of personal protective equipment shall be made available to the Contracting Officer and authorized visitors for entry to the asbestos regulated work area at all times for inspection of the asbestos regulated work area. Contracting Officer and authorized visitors shall be provided with training equivalent to that provided to Contractor employees in the selection, fitting, and use of the required personal protective equipment and the site safety and health requirements. Contractor workers shall be provided with personal protective clothing and equipment as specified herein and the Contractor shall ensure that it is worn properly. The Contractor's Certified Industrial Hygienist and designated competent person supervisor shall select and approve all the required personal protective clothing and equipment to be used in accordance with 29 CFR 1926.1101.

1.14 PRECONSTRUCTION CONFERENCE AND ONSITE SAFETY

The Contractor and the Contractor's Designated Competent Person, Project Supervisor, and Designated CIH shall meet with the Contracting Officer prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's submitted the Asbestos Hazard Abatement Plan. Onsite work shall not begin until the Asbestos Hazard Abatement Plan has been accepted. A copy of the written Asbestos Hazard Abatement Plan shall be maintained onsite. Changes and modifications to the accepted Asbestos Hazard Abatement Plan shall be made with the knowledge and concurrence of the Designated CIH, the Project Supervisor, Designated Competent Person, and the Contracting Officer. Should any unforeseen hazard become evident during the performance of the work, the Designated CIH shall bring such hazard to the attention of the Project Supervisor, Designated Competent Person, and the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the Contractor to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Once accepted by the Contracting Officer, the Asbestos Hazard Abatement Plan will be enforced as if an addition to the contract.

1.15 DECONTAMINATION

Decontamination of workers shall be in accordance with 29 CFR 1926.1101 for Class II work.

1.16 REGULATED AREAS

All Class II asbestos work shall be conducted within regulated areas. The terms asbestos control areas and control areas shall be synonymous with regulated areas throughout this specification. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they shall demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The Contractor shall control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

1.17 WARNING SIGNS AND TAPE

Warning signs and tape printed in English shall be provided at the regulated boundaries and entrances to regulated areas. The Contractor shall ensure that all personnel working in areas contiguous to regulated areas comprehend the warning signs. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area. Warning signs, as shown and described in SET-UP DETAIL SHEET 11 at the end of this section in

Attachment B, shall be in vertical format conforming to 29 CFR 1910 and 29 CFR 1926.1101, a minimum of 20 by 14 inches, and displaying the following legend in the lower panel:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

Spacing between lines shall be at least equal to the height of the upper of any two lines. Warning tape shall be provided as shown and described on SET-UP DETAIL SHEET 11. Decontamination unit signage shall be as shown and described on SET-UP DETAIL SHEET 15.

1.18 WARNING LABELS

Warning labels shall be affixed to all asbestos disposal containers used to contain asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements are acceptable. Warning labels shall be as described in SET-UP DETAIL SHEET 14, at the end of this section in Attachment B, shall conform to 29 CFR 1926.1101 and shall be of sufficient size to be clearly legible displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

1.19 LOCAL EXHAUST VENTILATION

Local exhaust ventilation units shall conform to ANSI Z9.2 and 29 CFR 1926.1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled.

1.20 TOOLS

Vacuums shall be leak-proof to the filter, equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system, or has otherwise been approved for use by the Contracting Officer. Residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

1.21 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the Contractor's notification shall be obtained from the rental agency.

1.22 AIR MONITORING EQUIPMENT

The Contractor's Designated CIH shall approve air monitoring equipment to be used to collect samples. The equipment shall include, but shall not be limited to:

a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute when equipped with a sampling train of tubing and filter cassette.

b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands, to be used with low flow pumps in accordance with 29 CFR 1926.1101 for personal air sampling.

d. Single use standard 25 mm diameter cassette, open face, 0.45 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive cowl, and shrink bands, to be used with high flow pumps when conducting environmental area sampling using NIOSH Pub No. 84-100 Methods 7400 and 7402.

e. Appropriate plastic tubing to connect the air sampling pump to the selected filter cassette.

f. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

1.23 EXPENDABLE SUPPLIES

1.23.1 Glovebag

Glovebags shall be provided as described in 29 CFR 1926.1101 and SET-UP DETAIL SHEET 10 at the end of this section in Attachment B. The glovebag assembly shall be 6 mil thick plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

1.23.2 Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container shall be provided.

1.23.3 Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926.1101 and SET-UP DETAIL SHEETS 9A, 9B, 9C and 14 at the end of this section in Attachment B.

1.23.4 Disposal Bags

Leak-tight bags, 6 mil thick, shall be provided for placement of asbestos generated waste as described in SET-UP DETAIL SHEET 9A at the end of this section in Attachment B.

1.23.5 Cardboard Boxes

Heavy-duty corrugated cardboard boxes, coated with plastic or wax to retard deterioration from moisture, shall be provided as described in SET-UP DETAIL SHEET 9C at the end of this section in Attachment B, if required by state and local requirements. Boxes shall fit into selected ACM disposal bags. Filled boxes shall be sealed leak-tight with duct tape.

1.23.6 Sheet Plastic

Sheet plastic shall be polyethylene of 6-mil minimum thickness and shall be provided in the largest sheet size necessary to minimize seams. Film shall be clear or black for use in decon privacy areas only and conform to ASTM D 4397, except as specified below:

1.23.6.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets shall be provided. Film shall be frosted and shall conform to the requirements of NFPA 701.

1.23.6.2 Reinforced

Reinforced sheets shall be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

1.23.7 Amended Water

Amended water shall meet the requirements of ASTM D 1331.

1.23.8 Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 140 degrees F. Preference shall be given to citrus-based solvents, or rationale for other type of solvent use provided.

1.23.9 Leak-tight Wrapping

Two layers of 6-mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags as described in SET-UP DETAIL SHEET 9B at the end of this section in Attachment B. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

1.23.10 Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8-inch thick, acrylic sheet, 18 by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows shall be sealed leak-tight with industrial grade duct tape.

1.23.11 Wetting Agents

Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in Paragraph 2.1 below.

1.24 MISCELLANEOUS ITEMS

A sufficient quantity of other items, such as, but not limited to: scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, other tools, scaffolding, staging, enclosed chutes, wooden ladders, lumber necessary for the construction of containments, UL approved temporary electrical equipment, material and cords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, logbooks, log forms, markers with indelible ink, spray paint in bright color to mark areas, project boundary fencing, etc., shall be provided.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvent and shall meet the following requirements:

ALL ENCAPSULANTS

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E 84
Combustion Toxicity Protocol	Univ. of Pittsburgh
Zero Mortality Life Expectancy, 20 yrs Accelerated Aging Test	ASTM C 732
Permeability, Minimum 0.4 perms	ASTM E 96

Additional Requirements for Lockdown Encapsulant

Requirement	Test Standard
Fire Resistance, Negligible effect on fire resistance rating over 3 hour test (Tested with fireproofing over encapsulant applied directly to steel member)	ASTM E 119
Bond Strength, 100 pounds of force/foot (Tests compatibility with cementitious and fibrous fireproofing)	ASTM E 736

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Asbestos abatement work tasks shall be performed as shown on the detailed plans, as summarized in Paragraph 1.3 above and the Contractor's Asbestos Hazard Abatement Plan. The Contractor shall use the engineering controls and work practices required in 29 CFR 1926.1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment as specified. The Contractor shall not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area. All hot work (burning, cutting, welding, etc.) shall be conducted under controlled conditions in conformance with 29 CFR 1926.352, Fire Prevention. Personnel of other trades, not engaged in asbestos abatement activities, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the Contractor's Accident Prevention Plan are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910, and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. The Contractor shall stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. The Contractor shall correct the condition to the satisfaction of the Contracting Officer, including visual inspection and air sampling. Work shall resume only upon notification by the Contracting Officer. Corrective actions shall be documented.

3.2 METHODS OF COMPLIANCE

3.2.1 Mandated Practices

The Contractor shall employ proper handling procedures in accordance with 29 CFR 1926 and 40 CFR 61, Subpart M, and the specified requirements. The specific abatement techniques and items identified shall be detailed in the Contractor's Asbestos Hazard Abatement Plan including, but not limited to, details of construction materials, equipment, and handling procedures. The Contractor shall use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

a. Vacuum cleaners equipped with HEPA filters to collect debris and dust containing ACM.

b. Wet methods or wetting agents to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup; except where it can be demonstrated that the use of wet methods is unfeasible due to, for example, the creation of electrical hazards, equipment malfunction, and in roofing.

c. Prompt clean-up and disposal in leak-tight containers of wastes and debris contaminated with asbestos.

d. Inspection and repair of polyethylene in work and high traffic areas.

e. Cleaning of equipment and surfaces of containers filled with ACM prior to removing them from the equipment room or area.

3.2.2 Unacceptable Practices

The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

b. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

c. Dry sweeping, shoveling, or other dry clean-up of dust and debris containing ACM.

d. Employee rotation as a means of reducing employee exposure to asbestos.

3.2.3 Class II Work

In addition to the requirements of Paragraph 3.2.1 above, the following engineering controls and work practices shall be used:

a. A Competent Person shall supervise the work.

b. For indoor work, critical barriers shall be placed over all openings to the regulated area.

c. Impermeable dropcloths shall be placed on surfaces beneath all interior removal activity, except for floor removal activities.

3.2.4 Specific Control Methods for Class II Work

In addition to requirements of Paragraph 3.2.3 above, Class II work shall be performed using the following methods:

3.2.4.1 Vinyl and Asphalt Flooring Materials

Tiles shall be removed following the practices as shown on RESPONSE ACTION DETAIL SHEET 59 at the end of this section in Attachment B. Tiles shall be removed intact (if possible); direct wetting is not required when tiles are heated and removed intact or during exterior flooring demolition.

Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet methods. Mechanical chipping is prohibited under all circumstances. Dry sweeping is prohibited. The Contractor shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean interior floors.

3.2.4.2 Roofing Material

When removing roofing materials which contain ACM as described in 29 CFR 1926.1101(g)(8)(ii), the Contractor shall use the following practices as shown in RESPONSE ACTION DETAIL SHEET 74 at the end of this section in Attachment B. Roofing material shall be removed in an intact state. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards. When removing built-up roofs, with asbestos-containing roofing felts and an aggregate surface, using a power roof cutter, all dust resulting from the cutting operations shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. Asbestos-containing roofing material shall not be dropped or thrown to the ground, but shall be lowered to the ground via covered, dust-tight chute, crane, hoist or other method approved by the Contracting Officer. Any ACM that is not intact shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. While the material remains on the roof it shall be kept wet or placed in an impermeable waste bag or wrapped in plastic sheeting. Intact ACM shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. Unwrapped material shall be transferred to a closed receptacle precluding the dispersion of dust. Critical barriers shall be placed over roof level heating and ventilation air intakes.

3.2.4.3 Cementitious Corrugated Siding and Shingles or Transite Panels

When removing cementitious asbestos-containing siding, shingles or transite panels, the Contractor shall use the following practices as shown in RESPONSE ACTION DETAIL SHEET 82 at the end of this section in Attachment B. Intentionally cutting, abrading or breaking siding, shingles, or transite panels is prohibited. Each panel or shingle shall be sprayed with amended water prior to removal. Nails shall be cut with flat, sharp instruments. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

3.2.5 Cleaning After Asbestos Removal

After completion of all asbestos removal work, surfaces from which ACM has been removed shall be wet wiped or sponged clean, or cleaned by some equivalent method to remove all visible residue. Run-off water shall be collected and filtered through a dual filtration system. A first filter shall be provided to remove fibers 20 micrometers and larger, and a final filter provided that removes fibers 5 micrometers and larger. After the gross amounts of asbestos have been removed from every surface, remaining visible accumulations of asbestos on floors shall be collected using plastic shovels, rubber squeegees, rubber dustpans, and HEPA vacuum cleaners as appropriate to maintain the integrity of the regulated area. When surfacing material has been removed, workmen shall use HEPA vacuum cleaners to vacuum every surface. Surfaces or locations which could harbor accumulations or residual asbestos dust shall be checked after vacuuming to verify that no asbestos-containing material remains; and shall be re-vacuumed as necessary to remove the ACM.

3.3 FINAL CLEANING AND VISUAL INSPECTION

Upon completion of abatement, the regulated area shall be cleaned by collecting, packing, and storing all gross contamination; see SET-UP DETAIL SHEETS 9A, 9B, 9C, and 14 at the end of this section in Attachment B. A final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the cleaning, the Contractor shall conduct a visual pre-inspection of the cleaned area in preparation for a final inspection before final air clearance monitoring and recleaning, as necessary. Upon completion of the final cleaning, the Contractor and the Contracting Officer shall conduct a final visual inspection of the cleaned regulated area in accordance with ASTM E 1368 and document the results on the Final Cleaning and Visual Inspection as specified on the SET-UP DETAIL SHEET 19 at the end of this section in Attachment B. If the Contracting Officer rejects the clean regulated area as not meeting final cleaning requirements, the Contractor shall reclean as necessary and have a follow-on inspection conducted with the Contracting Officer. Recleaning and follow-up reinspection shall be at the Contractor's expense.

3.4 EXPOSURE ASSESSMENT AND AIR MONITORING

3.4.1 General Requirements For Exposure

Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926.1101, the Contractor's air monitoring plan, and as specified. Personal exposure air monitoring (collected at the breathing zone) that is representative of the exposure of each employee who is assigned to work within a regulated area shall be performed by the Contractor's Designated CIH. Breathing zone samples shall be taken for at least 25 percent of the workers in each shift, or a minimum of 2, whichever is greater. Air monitoring results at the 95 percent confidence level shall be calculated. Preabatement and abatement environmental air monitoring shall be performed by the Contractor's Designated CIH. Final clearance environmental air monitoring, shall be

performed by the Contractor's Designated CIH. Environmental and final clearance air monitoring shall be performed using NIOSH Pub No. 84-100 Method 7400 (PCM) with optional confirmation of results by NIOSH Pub No. 84-100 Method 7402 (TEM). For environmental and final clearance, air monitoring shall be conducted at a sufficient velocity and duration to establish the limit of detection of the method used at 0.005 f/cc. Confirmation of asbestos fiber concentrations (asbestos f/cc) from environmental and final clearance samples collected and analyzed by NIOSH Pub No. 84-100 Method 7400 (total f/cc) may be conducted using TEM in accordance with NIOSH Pub No. 84-100 Method 7402. When such confirmation is conducted, it shall be from the same sample filter used for the NIOSH Pub No. 84-100 Method 7400 PCM analysis. For all Contractor required environmental or final clearance air monitoring, confirmation of asbestos fiber concentrations, using NIOSH Pub No. 84-100 Method 7402, shall be at the Contractor's expense. Monitoring may be duplicated by the Government at the discretion of the Contracting Officer. Results of breathing zone samples shall be posted at the job site and made available to the Contracting Officer. The Contractor shall maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the conduct of the asbestos abatement. If fiber concentration rises above 0.1 f/cc, work procedures shall be investigated with the Contracting Officer to determine the cause. At the discretion of the Contracting Officer, fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. The Contractor's workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a sampling period of 30 minutes. Should either an environmental concentration of 1.0 f/cc expressed as an 8-hour TWA or a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside a regulated work area, the Contractor shall stop work immediately, notify the Contracting Officer, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the Contracting Officer.

3.4.2 Initial Exposure Assessment

The Contractor's Designated CIH shall conduct an exposure assessment immediately before or at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to comply with the requirements which are triggered by exposure data or the lack of a negative exposure assessment, and to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor which indicate the levels of airborne asbestos likely to be encountered on the job.

3.4.3 Negative Exposure Assessment

The Contractor shall provide a negative exposure assessment for the specific asbestos job which will be performed. The negative exposure assessment shall be provided within 2 days of the initiation of the project and conform to the following criteria:

Initial Exposure Monitoring:

The results of initial exposure monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

3.4.4 Preabatement Environmental Air Monitoring

Preabatement environmental air monitoring shall be established 1 day prior to initiation of work efforts for each regulated area to determine background concentrations before abatement work begins. As a minimum, preabatement air samples shall be collected using NIOSH Pub No. 84-100 Method 7400, PCM at these locations: outside the building; inside the building, but outside the regulated area perimeter; and inside each regulated work area. For interior asbestos abatement/demolition activities, one sample shall be collected for every 2000 square feet of interior floor space. At least 2 samples shall be collected outside the building: at the exhaust of the HEPA unit; and downwind from the abatement site. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH Pub No. 84-100 Method 7402 (TEM).

3.4.5 Environmental Air Monitoring During Abatement

Until an exposure assessment is provided to the Contracting Officer, environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The assessment shall demonstrate that the product or material containing asbestos minerals, or the abatement involving such product or material, cannot release airborne asbestos fibers in concentrations exceeding 0.01 f/cc as a TWA under those work conditions having the greatest potential for releasing asbestos. The monitoring shall be at least once per shift at locations including, but not limited to, close to the work inside a regulated area; preabatement sampling locations; outside entrances to a regulated area; close to glovebag operations; representative locations outside of the perimeter of a regulated area; and at the exhaust discharge point of local exhaust system ducted to the outside of a containment (if used). If the sampling outside regulated area shows airborne fiber levels have exceeded background or 0.01 f/cc, whichever is greater, work shall be stopped immediately, and the Contracting Officer notified. The

condition causing the increase shall be corrected. Work shall not restart until authorized by the Contracting Officer.

3.4.6 Final Clearance Air Monitoring

3.4.6.1 Final Clearance Requirements, NIOSH PCM Method

For PCM sampling and analysis using NIOSH Pub No. 84-100 Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, shall be less than 0.01 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any sample result is greater than 0.01 total f/cc, the asbestos fiber concentration (asbestos f/cc) shall be confirmed from that same filter using NIOSH Pub No. 84-100 Method 7402 (TEM) at Contractor's expense. If any confirmation sample result is greater than 0.01 asbestos f/cc, abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

3.4.6.2 Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, the Contractor shall pay all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

3.4.7 Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours (breathing zone samples), and 24 hours (environmental/clearance monitoring) after completion of a sampling period. The Contracting Officer shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst, testing laboratory principal and the Contractor's Designated CIH. The air sampling results shall be documented on a Contractor's daily air monitoring log. The daily air monitoring log shall contain the following information for each sample:

a. Sampling and analytical method used;

b. Date sample collected;

c. Sample number;

d. Sample type: BZ = Breathing Zone (Personal), P = Preabatement, E = Environmental, C = Abatement Clearance;

e. Location/activity/name where sample collected;

f. Sampling pump manufacturer, model and serial number, beginning flow rate, end flow rate, average flow rate (L/min);

g. Calibration date, time, method, location, name of calibrator, signature;

h. Sample period (start time, stop time, elapsed time (minutes);

i. Total air volume sampled (liters);

j. Sample results (f/cc and S/mm square) if EPA methods are required for final clearance;

k. Laboratory name, location, analytical method, analyst, confidence level. In addition, the printed name and a signature and date block for the Industrial Hygienist who conducted the sampling and for the Industrial Hygienist who reviewed the daily air monitoring log verifying the accuracy of the information.

3.5 CLEARANCE CERTIFICATION

When asbestos abatement is complete, ACM waste is removed from the regulated areas, and final clean-up is completed, the Contracting Officer will certify the areas as safe before allowing the warning signs and boundary warning tape to be removed.

3.6 CLEANUP AND DISPOSAL

3.6.1 Title to ACM Materials

ACM material resulting from abatement work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified and in accordance with applicable federal, state and local regulations.

3.6.2 Collection and Disposal of Asbestos

All ACM waste including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in leak-tight containers such as double plastic bags (see DETAIL SHEET 9A); sealed double wrapped polyethylene sheet (see DETAIL 9B); sealed fiberboard boxes (see DETAIL SHEET 9C) at the end of this section in Attachment B; or other approved containers. Waste within the containers shall be wetted in case the container is breached. Asbestos-containing waste shall be disposed of at an EPA, state and local approved asbestos landfill. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/transportation conveyance (i.e., dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the Contracting Officer. Procedure

for hauling and disposal shall comply with 40 CFR 61, Subpart M, state, regional, and local standards.

3.6.3 Asbestos Waste Shipment Record

The Contractor shall complete and provide the Contracting Officer final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records, within 3 days of delivery to the landfill. Each Waste Shipment Record shall be signed and dated by the Contractor, the waste transporter, and disposal facility operator.

ATTACHMENT - A

ASBESTOS TEST RESULTS

GALVEZ STREET WHARF

William Sturm, LDEQ Asbestos Inspector certificate #9I00256, conducted the roof inspection in December 1998. Of the 13 sample locations, 3 located within the middle third of the wharf roof were positive for asbestos. All samples in the north and south sections were negative for asbestos.

Location	Sample Description	Results
Middle roof section, northwest corner	Asphalt / roofing material felt	45% Chrysotile
Middle roof section, center	Asphalt / roofing material	2% Chrysotile
Middle roof section, southeast corner and mastic top layer	Asphalt / roofing material felt	45% Chrysotile

STOREROOM

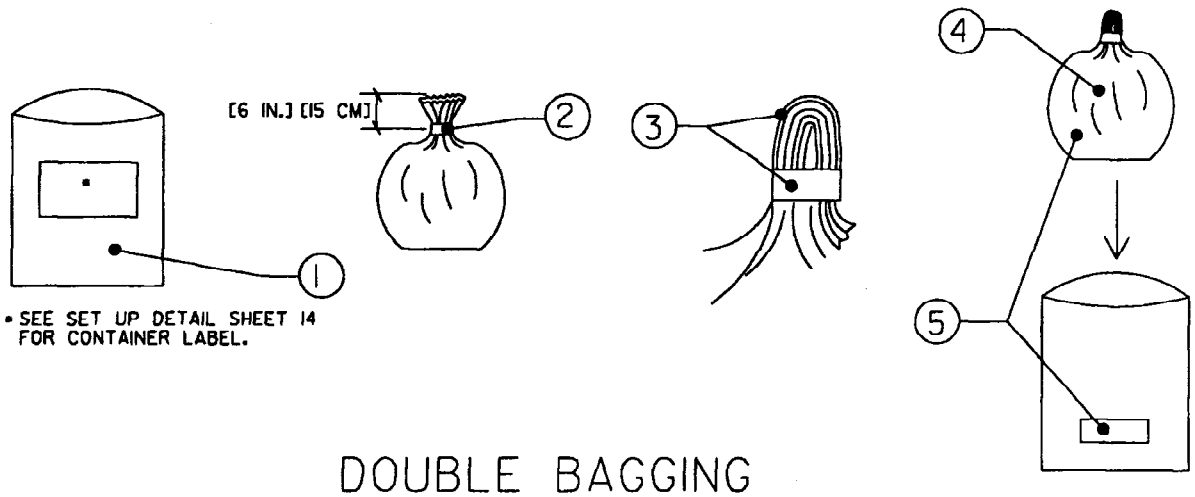
Darcie Rawlings, LDEQ Asbestos Inspector certificate #1100679, conducted the storeroom inspection in November 2000. Three sample locations were positive for asbestos.

Location	Sample Description	Results
Floor	12" X 12" light brown floor tiles	2% Chrysotile
Floor	9" X 9" cream floor tiles	10% Chrysotile
Awning	Transite siding	22% Chrysotile

ATTACHMENT – B

SET-UP DETAIL SHEETS AND RESPONSE ACTION DETAIL SHEETS
(the sheets listed on this page are contained at the end of this section in the order that they appear here)

SETUP DETAIL SHEET 9A	Containers - Double Bagging
SETUP DETAIL SHEET 9B	Containers - Leak-Tight Wrapping
SETUP DETAIL SHEET 9C	Containers - Corrugated Cardboard Boxes
SETUP DETAIL SHEET 10	Glove Bag
SETUP DETAIL SHEET 11	Area Warning Signs and Warning Tape
SETUP DETAIL SHEET 12	Respiratory Protection Table
SETUP DETAIL SHEET 14	Disposal Container Label
SETUP DETAIL SHEET 15	Decontamination Unit Signage
SETUP DETAIL SHEET 19	Certification of Final Cleaning and Visual Inspection
RESPONSE ACTION DETAIL SHEET 59	Removal of Vinyl Asbestos Tile and Chemical Dissolution of Asbestos-Containing Adhesives on Concrete Floor System
RESPONSE ACTION DETAIL SHEET 74	Removal of Built-Up Roofing and Flashing
RESPONSE ACTION DETAIL SHEET 82	Removal of Asbestos Cement Roofing



DOUBLE BAGGING

Containers—double bagging

1. Place the still-wet asbestos-containing and asbestos-contaminated material into a prelabled 6-mil polyethylene bag. Do not overfill. Do not use bag for asbestos-containing or asbestos-contaminated material that could puncture the bag. (See sheet 9C for packaging items that could puncture bags.)

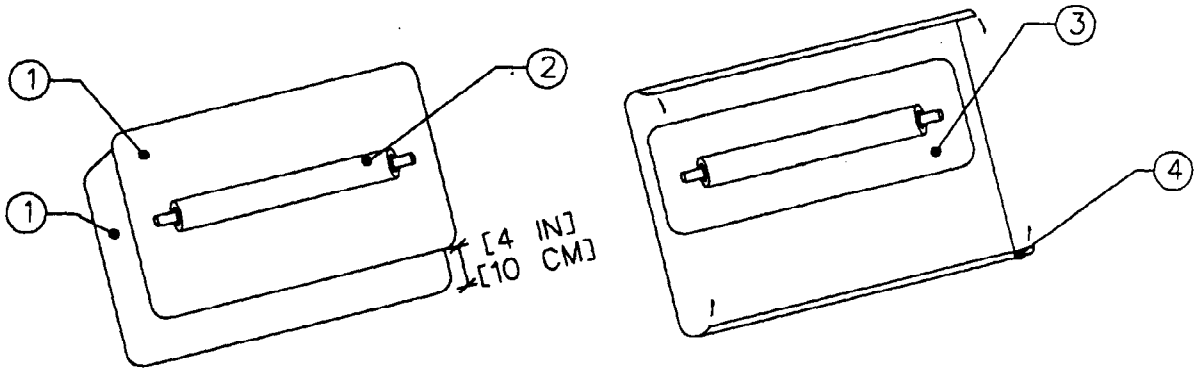
2. Evacuate with HEPA vacuum, and seal collapsed bag by twisting top [6 in] [15 cm] closed and wrapping with a minimum of two layers of duct tape.

3. Twist top and fold over. Apply second wrap of duct tape.

4. Adequately wet clean outside of disposal bag by wet wiping, and take bag to the equipment and staging area.

5. Place bag inside a second prelabled 6-mil polyethylene bag.

6. Seal outer bag by repeating steps 2 and 3 above. Take bag to load-out unit; see sheet 20.



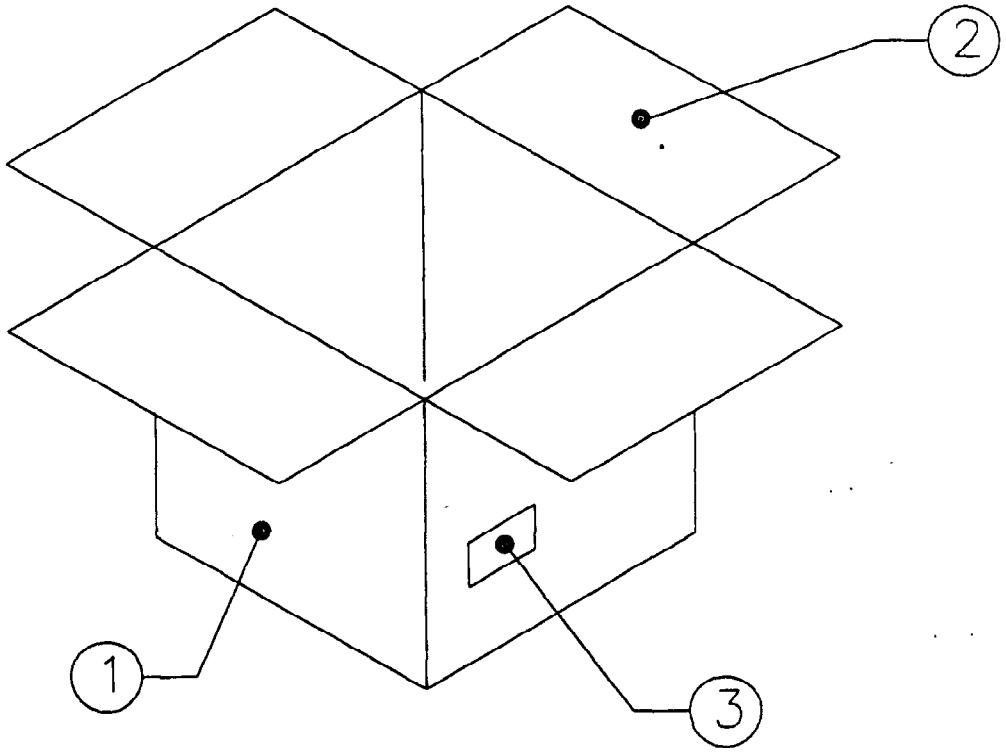
Containers—leak-tight wrapping

1. Place two layers of 6-mil polyethylene sheet on surface so that the bottom layer is offset [4 in] [10 cm] from the top layer.

2. Place the still-wet asbestos-containing or asbestos-contaminated material that is too large (boiler, vessel, pipe segment, etc.) to be placed in disposal bags on the top layer of polyethylene.

3. Wrap the top layer tightly around the contaminated material. Seal all edges of the top layer of sheeting with duct tape. Apply labels; see sheet 14.

4. Repeat procedure with bottom layer, including labeling. Take to load-out unit; see sheet 20.

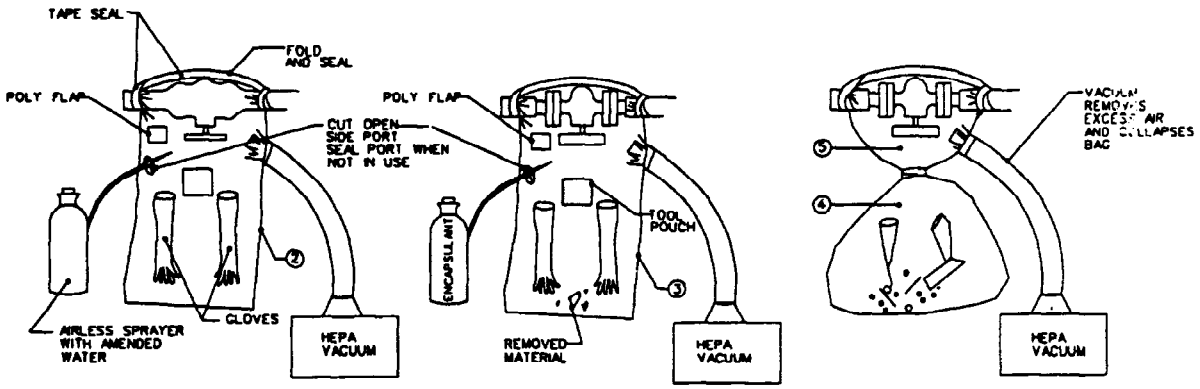


Containers—corrugated cardboard boxes

1. Place still-wet asbestos-containing or asbestos-contaminated material that could puncture disposal bags into heavy-duty corrugated cardboard boxes coated with plastic or wax that will retard deterioration from moisture.

2. Close flaps, and seal with duct tape.

3. Apply labels; see sheet 14. Place box into disposal bags; see sheet 9A. Take to load-out unit; see sheet 20.



Glove bag

1. Construct modified containment area in accordance with sheet 21. NOTE: Inspect for structural integrity the insulation material adjacent to section being removed, since glove bag removal procedure is not appropriate if it will cause asbestos fiber release from adjacent asbestos-containing material.

2. Put tools and rags inside glove bag. Insulation adjacent to the asbestos-containing material being removed must be adequately wet cleaned and sprayed with an encapsulant before placing glove bag over the area to be removed. Install glove bag according to manufacturer's instructions. (NOTE: Negative-air glove bags may be used if first approved by Contracting Officer. Manufacturer procedures for negative-air glove bags will vary from procedures identified on this sheet.) Install HEPA filter vacuum cleaner with hose ducted into bag. Seal with duct tape. Smoke test for leaks. Soak insulation with amended water.

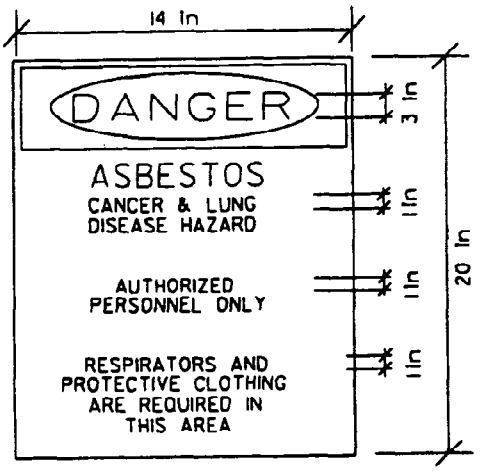
3. Remove insulation and clean exposed metal surfaces. Encapsulate exposed ends of insulation and metal surfaces. Adequately wet clean glove bag surfaces to below tool pouch.

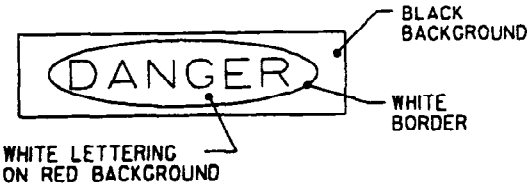
4. Grasp tools in pouch and withdraw by pulling glove inside out. Twist glove above encased tools to create a constriction, and tape constricted area with duct tape. Cut through middle of taped area so that tools and glove bag will both remain sealed. Place encased tools into tool pouch of next glove bag or decontaminate by water immersion.

5. Evacuate glove bag, using HEPA vacuum. Twist bag to create a constriction below tool pouch. Wrap constricted area with duct tape. Cut bag [4 in] [10 cm] above constriction. Double bag cut off portion of bag; see sheet 9. Apply labels; see sheet 14. Cap and seal end of HEPA vacuum hose in order to prevent incidental fiber release.

6. Remove remaining portion of glove bag. Place in approved container; see sheet 9. Apply labels; see sheet 14. Dispose as asbestos-contaminated waste.

Final Clearance requirements: For final clearance, Contractor and Contracting Officer will certify visual inspection of work area on sheet 19, *Certification of Final Cleaning and Visual Inspection*. Contract designee(s) will conduct final air-clearance monitoring as required by the contract.





AREA WARNING SIGNS AND WARNING TAPE

DETAIL 01

Area warning signs and warning tape

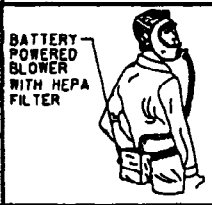
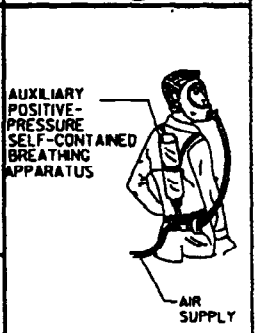
1. Provide and install [4 mil] [0.10 mm] polyethylene warning tape at locations shown on the abatement area plan.

2. Warning tape is to be attached to wood or metal posts at [10 ft] [300 cm] on center. Tape must be [3 ft] [100 cm] from ground.

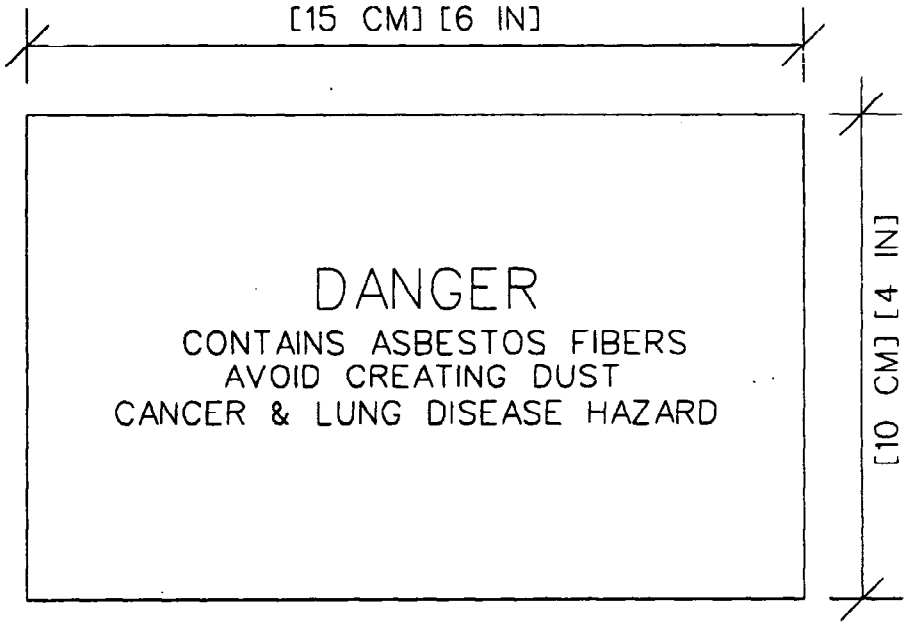
3. Attach both warning signs at each entrance of the work area and at [33 yd] [30 m] on center where security fencing is installed.

4. Warning signs must be in English and other languages required by the contract.

5. Install at eye level.

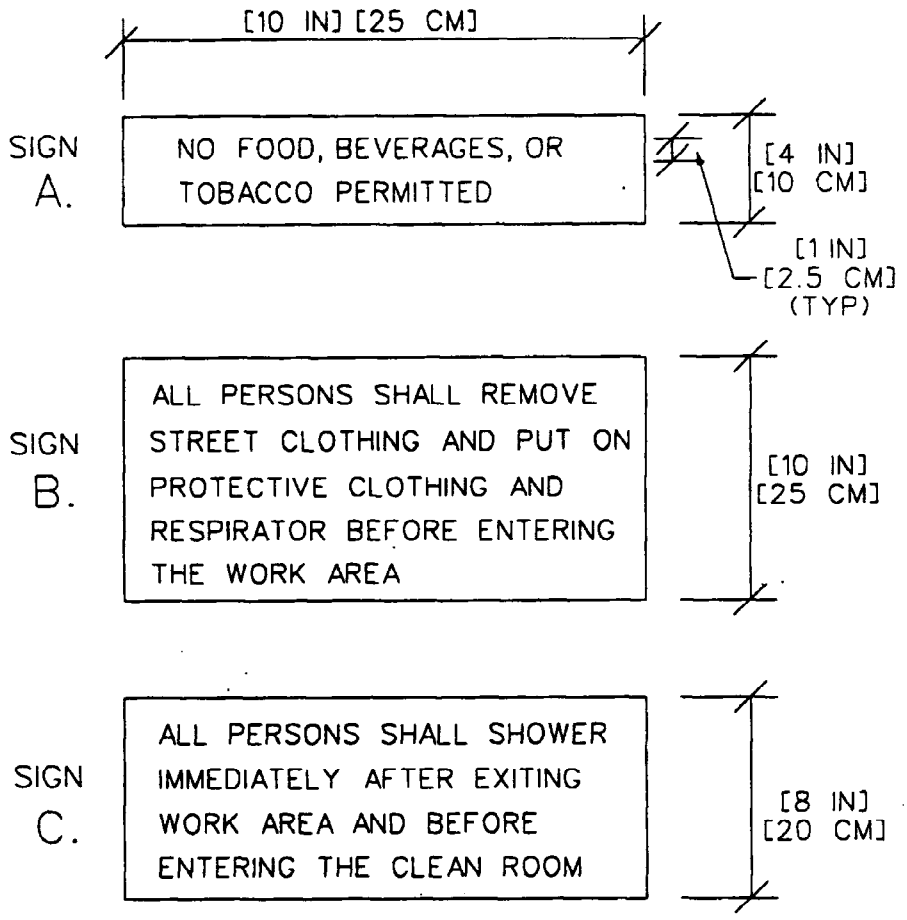
FIBER CONCENTRATION	MINIMUM REQUIRED RESPIRATOR	
NOT IN EXCESS OF 1 FIBER/CC	HALF-MASK AIR PURIFYING RESPIRATOR WITH HEPA FILTERS	
NOT IN EXCESS OF 5 FIBERS/CC	FULL FACEPIECE AIR-PURIFYING RESPIRATOR WITH HEPA FILTERS	
NOT IN EXCESS OF 10 FIBERS/CC	LOOSE FITTING HELMET OR HOOD, POWERED AIR-PURIFYING RESPIRATOR WITH HEPA FILTERS	
NOT IN EXCESS OF 10 FIBERS/CC	POWERED AIR-PURIFYING RESPIRATOR WITH FULL FACEPIECE AND HEPA FILTER	
NOT IN EXCESS OF 10 FIBERS/CC	LOOSE FITTING HELMET OR HOOD, SUPPLIED AIR RESPIRATOR OPERATED IN CONTINUOUS FLOW MODE WITH BACK-UP HEPA FILTER	
NOT IN EXCESS OF 10 FIBERS/CC	SUPPLIED AIR RESPIRATOR WITH FULL FACEPIECE OPERATED IN CONTINUOUS FLOW MODE WITH BACK-UP HEPA FILTER	
NOT IN EXCESS OF 100 FIBERS/CC	FULL FACEPIECE SUPPLIED AIR RESPIRATOR OPERATED IN PRESSURE-DEMAND MODE WITH BACK-UP HEPA FILTER	
GREATER THAN 100 FIBERS/CC OR UNKNOWN CONCENTRATION	FULL FACEPIECE SUPPLIED-AIR RESPIRATOR OPERATED IN PRESSURE-DEMAND MODE WITH AUXILIARY POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS	

Respiratory protection table



Disposal container label

Attach warning labels to each disposal container removed from abatement area.



Decontamination unit signage

1. Provide signs in English and other languages required by the contract.

2. Install at eye level.

Certification of Final Cleaning And Visual Inspection

Individual abatement task as identified in paragraph, Description of Work _____

In accordance with the cleaning and decontamination procedures specified in the Contractor's asbestos hazard abatement plan and this contract, the Contractor hereby certifies that he/she has thoroughly visually inspected the decontaminated regulated work area (all surfaces, including pipes, beams, ledges, walls, ceiling, floor, decontamination unit, etc.) in accordance with ASTM E1368, *Standard Practice for Visual Inspection of Asbestos Abatement Projects*, and has found no dust, debris, or asbestos-containing material residue.

BY: (Contractor's signature) _____ Date _____

Print name and title _____

(Contractor's Onsite Supervisor signature) _____ Date _____

Print name and title _____

(Contractor's Industrial Hygienist signature) _____ Date _____

Print name and title _____

Contracting Officer Acceptance or Rejection

The Contracting Officer hereby determines that the Contractor has performed final cleaning and visual inspection of the decontaminated regulated work area (all surfaces including pipes, beams, ledges, walls, ceiling, floor, decontamination unit, etc.) and by quality assurance inspection, finds the Contractor's final cleaning to be:

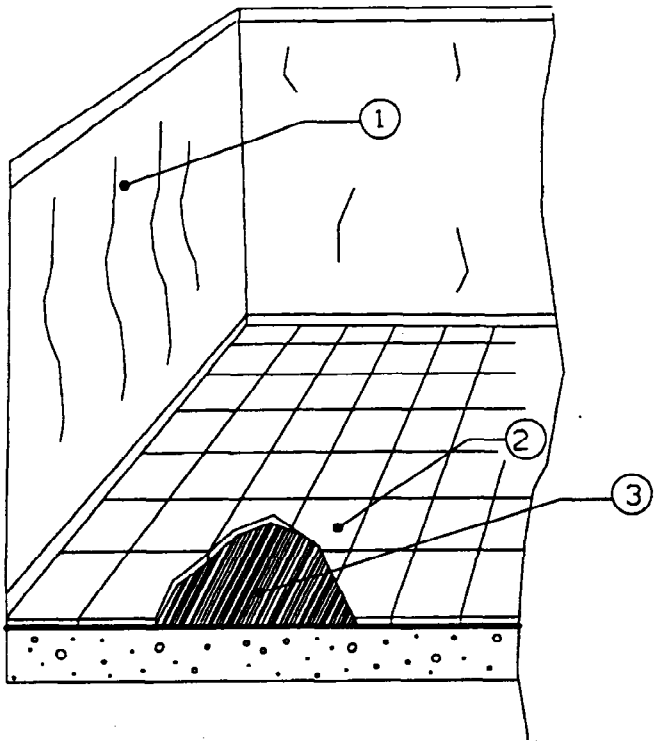
☐ Acceptable

☐ Unacceptable, Contractor instructed to reclean the regulated work area.

BY: Contracting Officer's Representative

Signature _____ Date _____

Print name and title _____



USE THIS DETAIL ONLY FOR
- SMALL SCALE PROJECTS
- GROUND FLOOR APPLICATIONS

Removal of vinyl asbestos tile and chemical dissolution of asbestos-containing adhesives on concrete floor system

1. Prepare containment area as specified on sheet 4.

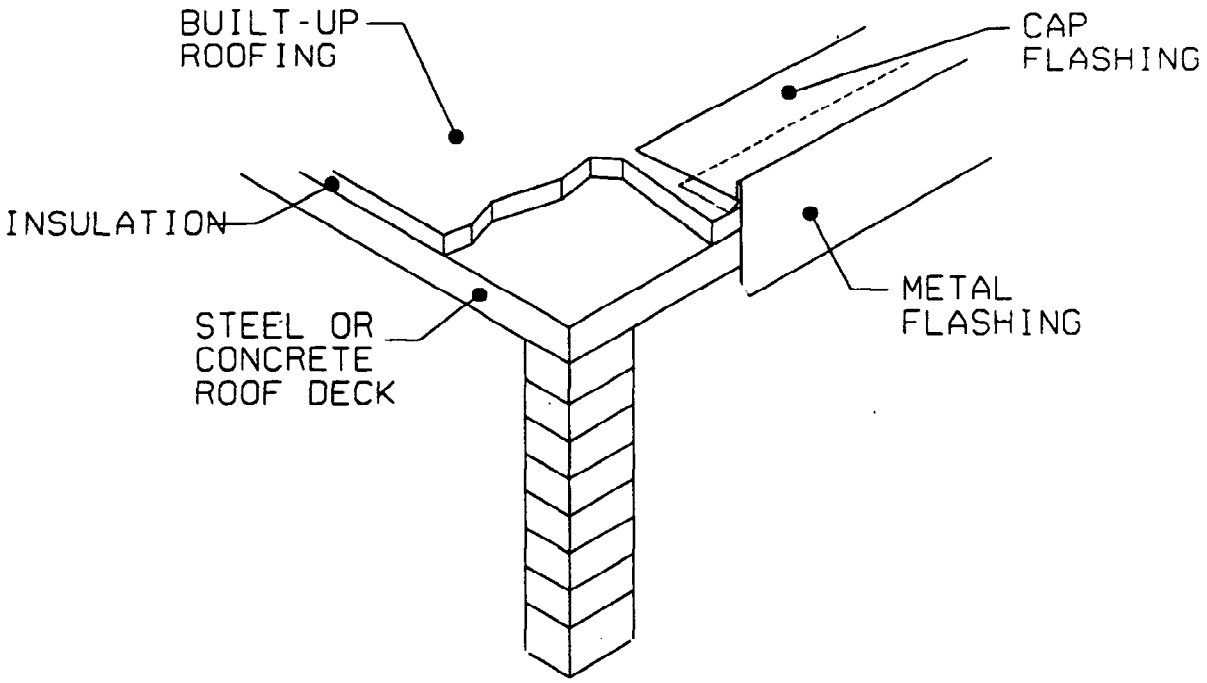
2. Lightly flood asbestos tile, and soak for 48 hours. Remove asbestos tile and adhesive while they are wet in order to prevent asbestos fiber release. Place tile and adhesive into an approved container; see sheet 9. Apply labels; see sheet 14.

3. Before removing adhesive, increase ventilation rate to 10 air changes per hour. Air must be exhausted outside building.

4. Apply liquid adhesive remover. As soon as the adhesive is soft enough to scrape, remove and put into approved container; see sheet 9. Apply labels; see sheet 14.

5. Prepare area for final air clearance.

6. Carry out final clearance requirements as specified on sheet 18.



Removal of built-up roofing and flashing

1. No containment area is required. Establish boundaries of asbestos-regulated work area so that unauthorized entry is prevented; see sheet 11. Provide personal protection and decontamination facilities as specified in contractor's asbestos hazard abatement plan.

2. Remove accumulated debris.

3. Adequately wet mist flashing and built-up roofing, initially and during removal procedures. Remove flashing and built-up roofing.

4. Dispose of all materials by carefully sliding them down an enclosed chute into an enclosed Dumpster or truck that is lined with two layers of 6-mil polyethylene. When the Dumpster or truck is filled, fold the polyethylene edges over each other and seal with duct tape; see sheet 9 for leak-tight wrapping. Apply labels; see sheet 14.

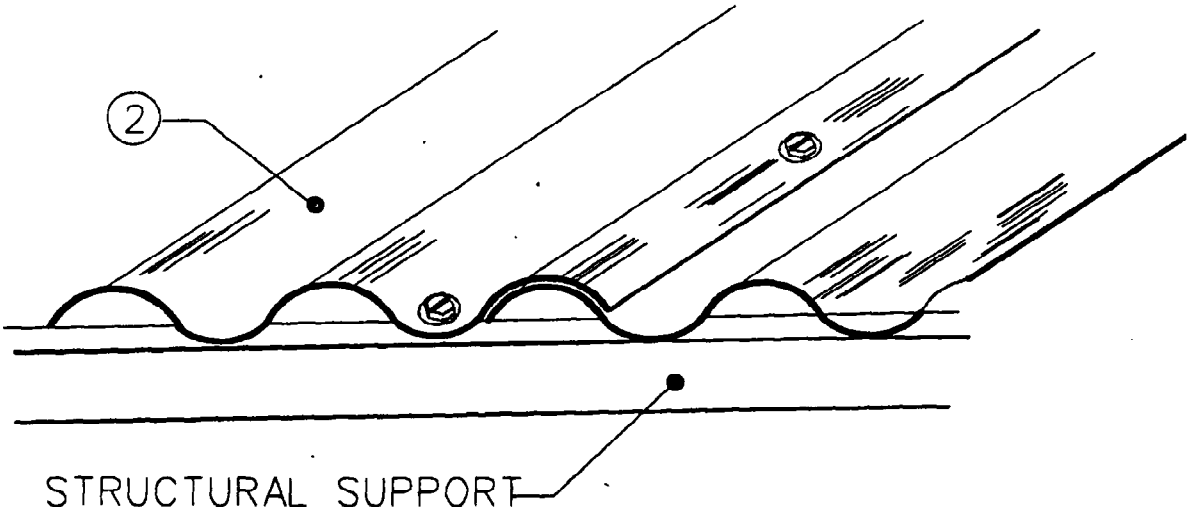
5. Clean and HEPA vacuum roof.

6. Inspect and reclean area as necessary.

7. Apply tinted penetrating encapsulant to exposed roof deck, using an airless sprayer. Inspect and reapply encapsulant as necessary.

8. Prepare area for final clearance.

9. Contractor and contracting officer will certify visual inspection of work area on sheet 19, *Certification of Final Cleaning and Visual Inspection.*



Removal of asbestos cement roofing

1. No containment area is required. Establish boundaries of asbestos-regulated work area so that unauthorized entry is prevented; see sheet 11. Provide personal protection and decontamination facilities as specified in contractor's asbestos hazard abatement plan.

2. Wet mist the top surface of the roofing with ammended water, initially and during removal procedures. Carefully remove roofing in a manner that will prevent crumbling, pulverizing, or reducing to powder during the removal procedure. NOTE: Normal breakage does not constitute crumbling, pulverizing, or reducing to powder.

3. Place all materials in Dumpster or other transport container lined with two layers of 6-mil polyethylene. Seal the joints and ends of each layer with duct tape; see sheet 9. Apply labels; see sheet 14. Other containers may be used; see sheet 9. Apply labels; see sheet 14.

4. Prepare area for final clearance.

5. Contractor and contracting officer will certify visua inspection of work area on sheet 19, *Certification of Final Cleaning and Visual Inspection.*